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ABSTRACT

This study examined whether the differential maternal treatment of twins affected the twins' on-task behaviors in a teaching interaction. A total of 175 mothers and their same-sex 14-month-old twins were videotaped in their homes in triads. This was repeated for 170 of the families when the children were 24 months, and for 146 of the families when their children were 36 months old. Mothers were told to teach their children a difficult sorting task, and the first 2.5 minutes of each mother-child interaction was coded for warmth and control on the part of mothers, and, for the children, for time spent watching mother and time spent working on the task. Analyses indicated that maternal control was related positively to children's on-task behavior at 24 months and negatively at 36 months. Maternal warmth correlated positively with children's on-task and attention behaviors. When mothers were warmer with one child, that child worked on the task more than the other child. However, when mothers spent more time with one child, that child spent less time working on the task than the other child. (MDM)

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Mother-infant interactions: A twin perspective

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ABSTRACT

Investigations of how mothers and infants affect each other's behaviors have had important implications for much of our understanding of how children learn skills relevant to later social and cognitive development. The present study examined whether differential maternal treatment of twins affected the twins' on-task behaviors in a teaching interaction. 175 mothers and their same-sex 14-month-old twins were videotaped in their homes in triads and were re-tested at 24 and 36 months. Analyses showed that maternal control was related to children's on-task behavior positively at 24 months and negatively at 36 months. Maternal warmth correlated positively with children's on-task and attention behaviors. Differential maternal treatment also was related to children's behaviors. When mothers were warmer to one child, that child worked on task more than the other child. However, when mothers spent more time with one child, that child spent less time working on task than the other child.

INTRODUCTION

Investigations of how mothers and infants affect each other's behaviors have had important implications for much of our understanding of how children learn skills relevant to later social and cognitive development. Relatedly, some researchers have explored whether differential treatment of siblings impacts the siblings' behaviors in the cognitive and social domains (e.g., Robinson et al., 1990; Schaeffer, 1989; Stocker et al., 1989). However, the study of siblings has an implicit problem in that siblings are studied either at different ages at the same point in time or at the same ages at different points in time.

The present study utilized twins, thus allowing the study of siblings at the same age and at the same point in time. This study examined whether differential maternal treatment of twins affected the twins' on-task behaviors in a teaching interaction.

HYPOTHESES

- Differential treatment of the twins by their mothers was expected to lead to differential task performance by the children.
  - *It was expected that children whose mothers attended to them more than their co-twin would spend more time on-task.*
  - *It also was expected that children whose mothers were warmer to them than to their co-twin would spend more time on-task and would watch their mothers more (be more attentive).*

- It was expected that MZ twins would be more similar to each other on the child measures than would DZ twins.
  - *If so, then DZ twins were expected to be treated less similarly than MZ twins by their mothers on measures of control (which seem to be more environmentally triggered) but not on measures of warmth (which may be more trait specific).*

METHODS

- 175 mothers and their same-sex 14-month-old twins were videotaped in their homes in triads.
- Mothers were told to teach their children a difficult sorting task.
  - *This was repeated for 170 of the families when the children were 24 months old and 146 of the families when the children were 36 months old.*
- The first 2 ½ minutes of the interaction were coded because that was the length of the shortest interactions and all interactions were coded for the same length of time.

MEASURES

- Mothers were coded for:

warmth measures:

Holding/touching affectionately
Acknowledging the child

control measures:

Verbally telling the child what to do
Modeling the task
Demonstrating/showing the task

  - *Summary scores were created for each child at each age for Warmth and Control by summing the relevant scores (as above).*

- Children were coded for amount of time they spent Watching Mother and for amount of time they spent actually Working On Task.

RESULTS

- Pearson correlations were computed between maternal Control and Warmth and child on-task behaviors longitudinally (see Figure 1), using one member of each twin pair for sample A, the other member for sample B, to allow split-half analyses.
  - *Results for the split samples were highly comparable.*
  - *At all ages, there was a positive correlation between maternal Warmth and child On-Task (average r = .31, .38, .21 for each age, respectively).*
  - *Mothers' controlling behaviors did not increase task performance at 14 months (avg. r = .08) but did at 24 months (avg. r = .26). The correlation was significant and negative at 36 months (avg. r = -.22).*

- Pearson correlations were computed between the difference in time that mothers spent with the children and the difference in time that the children spent on-task (see Figure 2).
  - *A clear trend showed that as children got older, differential treatment was more related to on-task behavior.*

- *At 14 months, differential treatment was unrelated to task behavior (r = -.04), but at 24 months (r = -.19) and even more so at 36 months (r = -.44) children spent more time on-task when mothers spent less time teaching or trying to engage them in the task.*

- Pearson correlations were computed between the difference in how warm mothers were to the children and the differences in how much children attended to mother and worked on task.
  - *At 14 and 24 months, children whose mothers treated them more warmly than their co-twin worked on task more (r = .23 and .22, respectively) but did not attend to mother more (see Figure 3).*

- Correlations were computed for MZ and DZ pairs to determine whether MZ pairs were more similar to each other than were DZ pairs.
  - *There were no significant differences by zygosity (see Table 1).*
  - *There also was no evidence of differential maternal treatment by zygosity (see Table 1).*

CONCLUSIONS

- Maternal treatment had an effect on children's task behaviors, and this effect differed developmentally. Possible explanations include:
  - *Maternal attempts to control the child's behavior had no effect on the child's on-task behaviors at 14 months, but it increased on-task behaviors at 24 months and decreased them at 36 months.*
  - *This suggests that at 14 months children are not responding to maternal attempts to behave in a structured way, but that by 24 months they are able to do so. However, by 36 months the children either resisted the controlling behaviors or else spent all their time watching mothers rather than trying to do what they were told to do.*

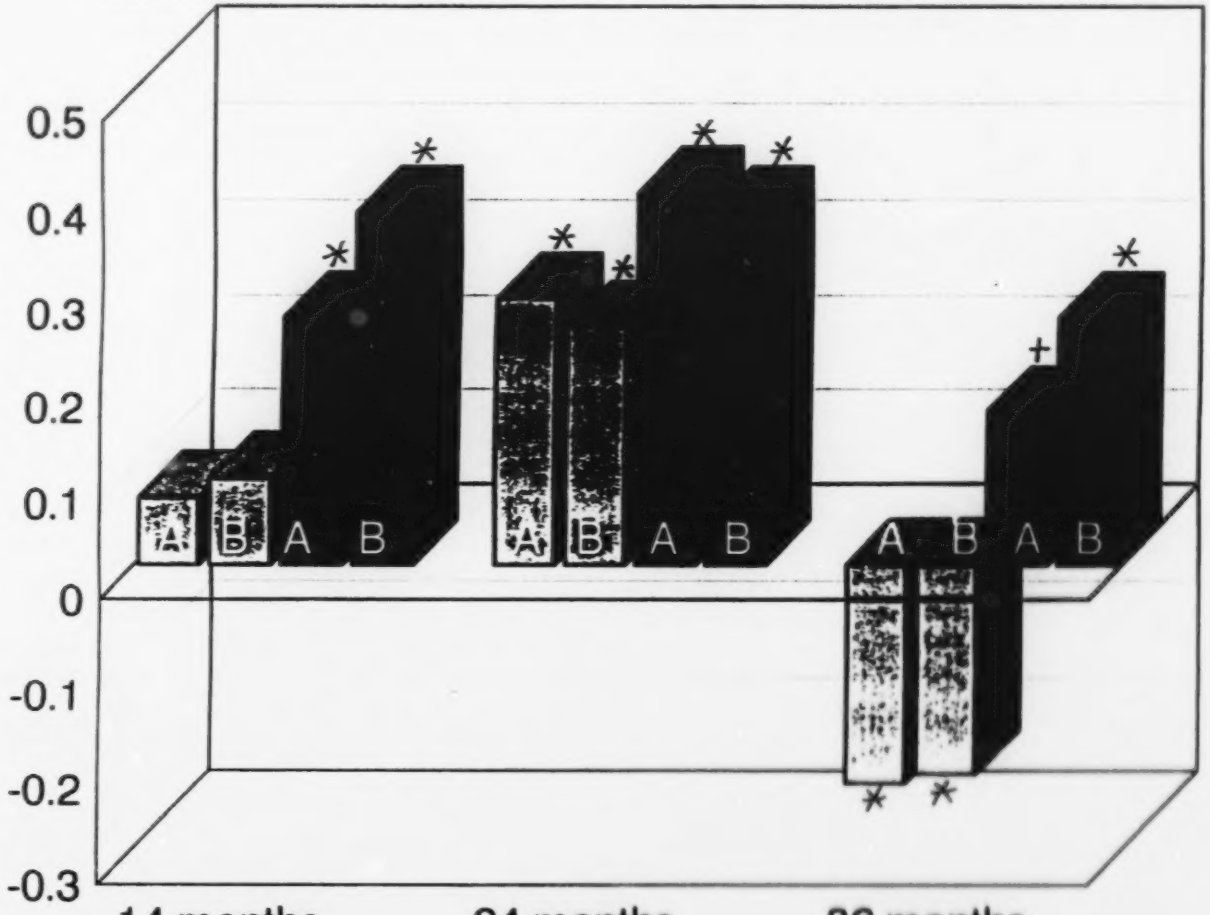
    Or
  - *Mothers of 14-month-olds are the least responsive to their infants' behaviors, but when the children are 24 months old the mothers are more tuned in such that when children work on task more, their mothers work with them more (and vice versa). By 36 months, as children begin working independently more, mothers may be more concerned about the child who is not working on task and may spend more time with that child.*

- Differential maternal treatment also was related to children's behaviors. When mothers were warmer to one child, that child worked on task more than the other child. However, when mothers spent more time with one child, that child spent less time working on task than the other child.
  - *This suggests that children worked on task more when mothers left them to work on their own, and that when they did work on task mothers were verbally warmer and reinforcing.*

- No behavioral differences were evident with respect to zygosity, suggesting that all similarities between siblings are due to shared environment.

Figure 1

Correlation between Child Works on Task and Mother Control and Warmth

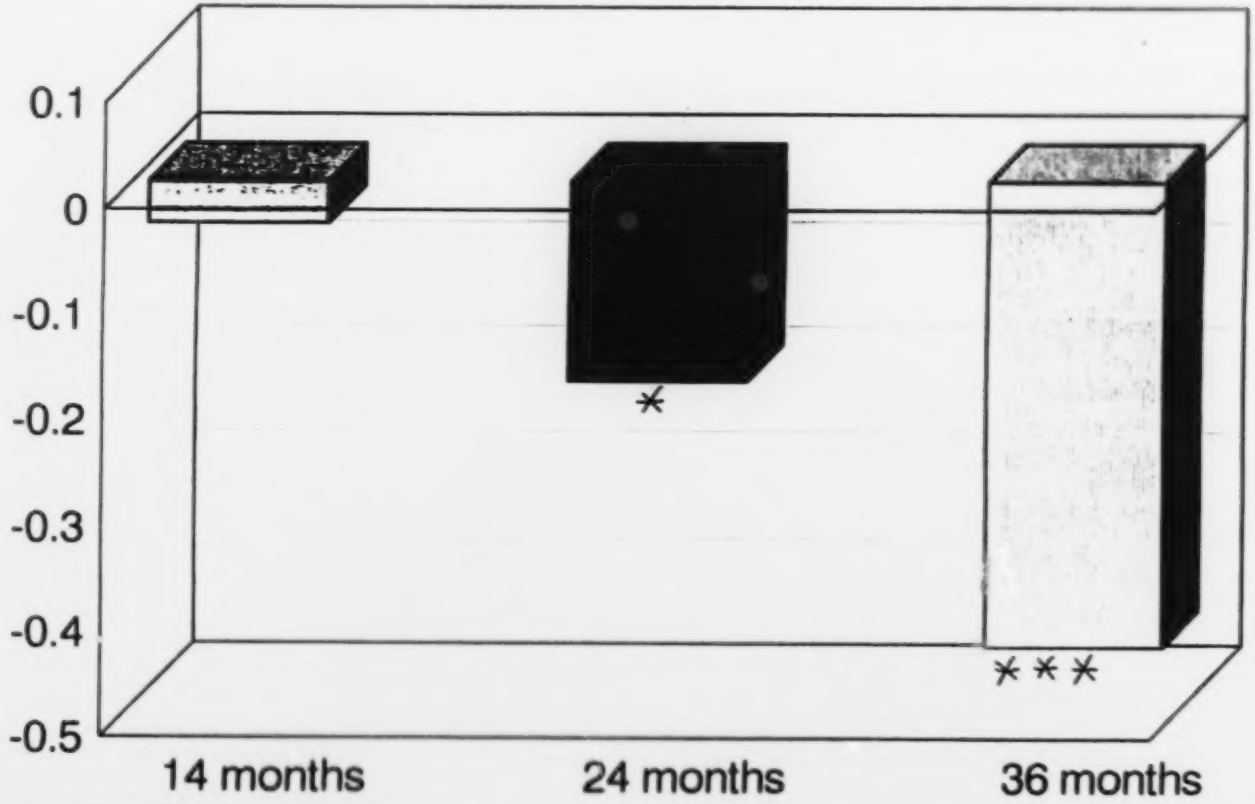


+ p < .07 * p < .05

Red = Control, Blue = Warmth
(light) (dark)

Figure 2

Correlation between Differential Maternal Time Spent with Each Child and Differential Child On-Task Behavior



* p < .05 *** p < .001

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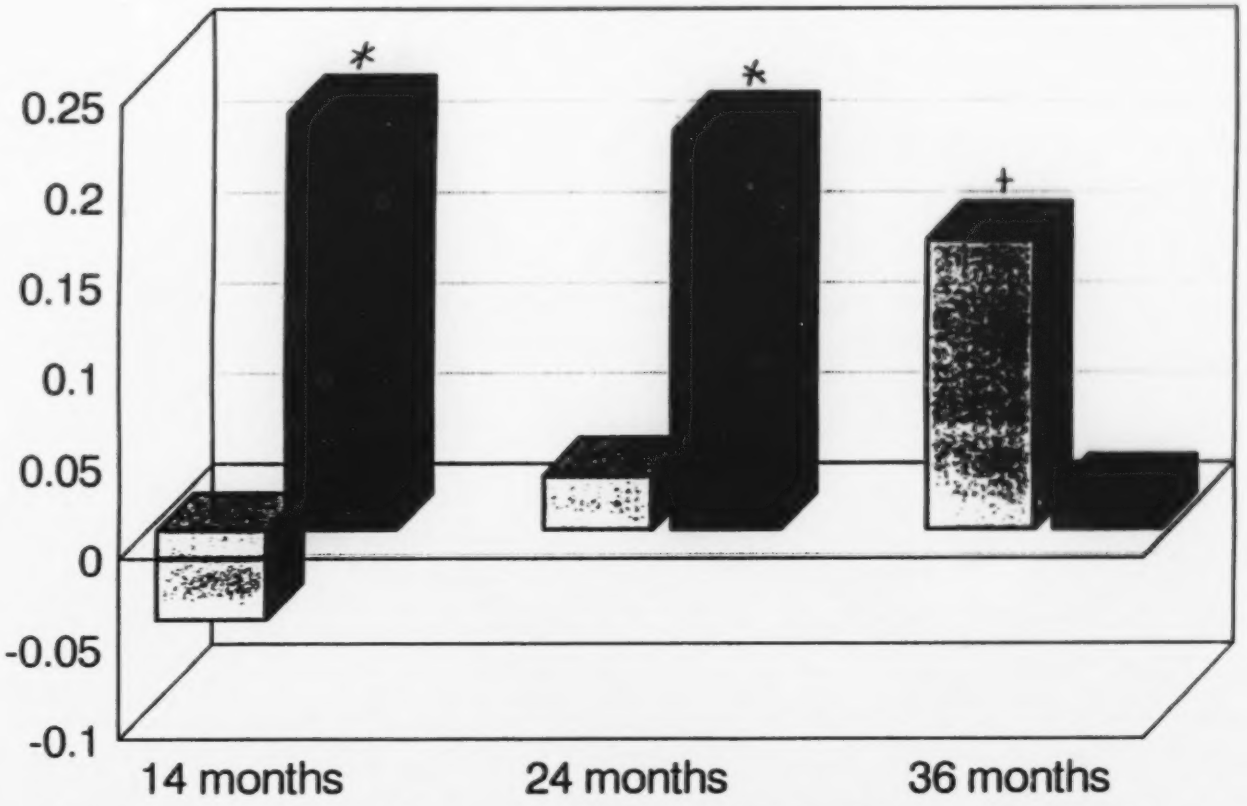
Figure 3

Correlation between Differential Maternal Warmth and Differential Child Attending and On-Task Behaviors



+ p < .06 * p < .05 ** p < .01 Red = Watch, Blue = On-Task
(light) (dark)

TABLE 1
TWIN CORRELATIONS BY ZYGOSITY AND AGE

	14 mo.		24 mo.		36 mo.	
Child Variable	MZ	DZ	MZ	DZ	MZ	DZ
Watch Mom	.16	.15	.09	.28**	.59**	.44**
Works on Task	.39**	.42**	.50**	.40**	.37**	.19
Maternal Variable						
Warmth	.35**	.39**	.17	.35**	.60**	.42**
Control	.15	.17	.26*	.22*	.11	.03

* $p < .05$
** $p < .01$

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